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Exploring Behavior on the Herbal Galactagogue Usage among Malay Lactating Mothers in Malaysia

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Abstract

Breastfeeding provides the physiological and health benefits for both mother and child. However, problems such as insufficient milk ejection may affect the mothers' breastfeeding process and may urge the mothers to consider on using galactagogue. We collected and analyzed questionnaire consists demographic data and usage patterns of herbal galactagogue during lactating. From findings, most mothers consumed herbal galactagogue due to insufficient milk ejection. A larger scale survey of herbal galactagogues used would be beneficial in future to the state of knowledge and clinical study on the most popular herbs.

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Keywords: Breastfeeding; herbal galactagogue; Malay mothers; insufficient milk ejection

1. Introduction

Breastfeeding provides many positive outcomes for both mothers and infants for short term and long term period. It provides all essential ingredients for the infant development and it hinders the chances of several chronic diseases to both mothers and infants. Breastfeeding is beneficial to improve infant's immunity system development, maximize nutrients absorption, improves neurodevelopment and maternal psychological well-being. In Islam, mothers are responsible to breastfeed their baby only if the mother

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has no hindrance or limitation. Islam encourages a mother to breastfeed her baby until he is 2 years old. Malaysia's breastfed prevalence declines from 92% (1950) to 78% (1974) but rises up to 85% and 94.7% in 1988 and 2006 (MOH, 1996; Fatimah et al., 2010). The introduction of Malaysian Code of Ethics for Infant Formula Products in 1979 contributes to the increment. The code highlights the importance of breastfeeding practice among mothers and babies as it emphasizes on breastfeeding's benefits in improving health and nutritional uptake among infants and children. However, many mothers often face challenges in their effort to breastfeed their infants. A challenge that most mothers encounter is an insufficient milk supply perception that may lead to early cessation of breastfeeding. Mothers and babies are usually the main reasons for this shortage. Mothers who have an insufficient milk supply often consider the usage of galactagogue. Galactagogues are substances which mothers conceive to benefit in increasing the amount of milk production. They include foods, herbal preparation and synthetic galactagogues. Working mothers who want to increase their milk pumping output, adoptive mothers who want to develop milk supply for their adopted child or mothers which indeed have a low milk production, often prefer to use galactagogue for their aide. Traditional cultures often lead mothers to opt for herbal galactagogues because they believe herbal galactagogue is safer and easily available in the market. Currently there is no information on the rationale and prevalence of using herbal galactagogue during lactating among Malay mothers in Malaysia. We conduct this research to show the usage patterns of herbal galactagogue during lactating, providing information on the herbal type, usage prevalence and rationale for use to increase the breast milk ejection among Malay lactating mothers in Malaysia. From this research, we hope that there will be further clinical studies on the most widely used herbal galactagogue among Malay mothers.

2. Literature reviews

Breast-milk is the best food source for virtually all children in most situations. Other than eliminating hunger and thirst, it provides beneficial component in the exact proportion for infancy growth such as enzymes, immune factors, minerals, proteins and growth factors. World Health Organization (WHO) recommends mothers to breastfeed their infants exclusively for up to six months and extend the breastfeeding period until they reach two years old and above with proper complementary solid food (WHO, 2002). Breastfeeding improves general health and well-being of children and mothers. Previous researches highlight breastfeeding's importance to both mother and child. Breast-milk is a complex fluid. It contains various chemical and cellular components which are absent in commercial formula milks. Breast-milk is unique and exclusive for every pair of a mother and child. It adapts to every child's developing system to provide the exact amount of nutrition for each growth stage (Gartner et al., 2005). After labor and approximately one week, mothers produce colostrums. A small amount of colostrums have a higher content of cholesterol and almost three folds the amount of protein than mature milk. Colostrums contain a high level of immunoglobulin. Immunoglobulin is an essential protein for an infant to fight diseases and boost his immune system (Sally et al., 2010). The production of fats by transitional milk during five days to two weeks after birth helps babies to regain weight. Six weeks afterwards, mothers produce mature milk to fulfill babies' needs. In comparison with a formula milk-fed child, a breast-fed child has a higher resistance to several diseases such as diarrhea and has a lower risk of infection (Marild et al., 2004). During a breastfeeding session, a mother's body releases antibodies and helpful hormones such as oxytocin and prolactin, which strengthen maternal bond between the mother and her baby. Breastfeeding mothers have less risk of endometrial, ovarian (Robenblatt & Thomas, 1993) and breast cancer (Gartner et al., 2005). Lactational Amenorrhea Method (LAM) is a condition where mothers who breastfeed their babies exclusively up to six months may experience no ovulation throughout the period. Mothers should fulfill the following characteristics; amenorrhoeic woman,

breastfeed immediately after delivery, breastfeed at least five breastfeeding sessions for a minimum of 65 min (>10 min/session) of total suction time and do not introduce any supplement to the newborn (Sally et al., 2010). Barriers to breastfeeding initiation include perception of insufficient milk among mothers, lack of breastfeeding knowledge and lack of support from community. Stringent hospital policies added with physicians with lack of correct and consistent information about breastfeeding also make breastfeeding difficult to new mothers. Media coverage on breastfeeding is insufficient while advertisement about infant formula benefits is countless. Lactation physiology, psychological and social factors play an important role in milk ejection. Medical conditions of mothers such as hypothyroidism, diabetes and polycystic ovarian syndrome may also affect milk production. (Abascal & Yarnell, 2008). Galactagogues are pharmaceutical agents, food, drink, herbal preparation used to support initiation, continuation, or augmentation of milk production (Antonia et al., 2012). The most common Western strategy is to boost prolactin production as it is one of the responsible hormones for milk production or lactogenesis (Diana&Lisa, 2009). However, high dosages and concurrent usage of domperidone may increase the risk of arrhythmias and sudden cardiac death (Osborne et al., 1985) while prolong usage of metoclopramide results maternal depression and tardive dyskinesia (Philip, 2013). Instead of using pharmaceutical galactagogue most mothers decided to use herbal galactagogue. Mothers around the world consumed their cultural herbs preparation as a galactagogue. For example, women in North Sumatra, Indonesia consumed torbangun leaves (Coleus amboinicus Lour) as galactagogue (Damanik, et al., 2006) and studies done by Gupta et al. (2011) in India, concluded that shatavari has significant galactogogue activity. At the moment, there are several types of herbal galactagogues commercially available in our country for example fenugreek, black seed, alfalfa and red raspberry leaf. With the public's increasing interest in herbal galactagogues, it is prudent that health care providers involved with lactating mothers be familiar with the commonly used herbal galactagogue.

3. Methodology

This cross-sectional behavioral survey conducted in between January to June 2013 and successfully recruited respondents through several online breastfeeding support groups on voluntary basis. A total of 83 respondents who met the eligibility criteria participated in this research. The eligibility criteria in this research are among Malay mother who is using herbal galactagogue, breastfeeding mothers; submitted complete form and they agree to take part. A survey instrument developed to assess the following conditions; demographic data, earlier and current use of herbal galactagogue, rationale for use, referral sources for herbal galactagogue and satisfaction on the effectiveness of the galactagogue used. A member of International Board Certified Lactation Consultant® validates the questionnaire. We tested the questionnaire's reliability by distributing it among breastfeeding mothers in Universiti Teknologi Mara, Bertam Campus, Penang, Malaysia. We coded and entered all data in the questionnaire into Statistical Package for the Social Sciences (SPSS) Version 20.0 for further analysis.

4. Findings

Table 1 shows the characteristics of the population under study. The sample consisted of 65.1% (n=54) mothers range 21-30 years and 34.9% (n=29) mothers range 31-40 years old. Most of respondents are working mothers (89.2%; n=74) while 10.8% (n=9) of the participants are not working. Majority of respondents (59%; n=49) received first degree education, followed by 18.1% (n=15) with masters degree, 13.3% (n=11) have diploma, 6% (n=5) received secondary education and 3.6% (n=3) completed their doctor of philosophy studies. According to the survey on breastfeeding duration, 23 respondents (27.7%) breastfeed their child in more than 18 months, 20 respondents (24.1%) breastfeed their child between 2-6

months, 19 respondents (22.9%) breastfeed their child between 6-12 months, 12 respondents (14.5%) breastfeed their child between 12-18 months and 9 respondents (10.8%) breastfeed their child less than 6 months.

Table 1. Demographic characteristics of the respondents

Characteristics	Respondents *(n)*	Percentage *(%)*
Age (year)		
21 – 30	54	65.1
31 – 40	29	34.9
Mother's occupation status		
Not working	9	10.8
Working	74	89.2
Education level		
Secondary school	5	6
Diploma	11	13.3
Bachelor degree	49	59
Masters	15	18.1
Doctor of philosophy	3	3.6
Breastfeeding duration		
Below 6 months	9	10.8
2 – 6 months	20	24.1
6 – 12 months	19	22.9
12 – 18 months	12	14.5
More than 18 months	23	27.7

82 (99%) respondents know about galactagogue. According to this survey (Figure 1), most mothers (n=50; 60.2%) heard about galactagogue from their friends followed by accessing the information through internet (n=28; 33.7%). Four mothers know about galactagogue from their support group discussion. One mother gained the information about galactagogue from reading articles published in newspapers and magazine. There was one respondent who doesn't know about galactagogue. We asked respondents on why they prefer to consume herbal galactagogue instead of using pharmaceutical galactagogue (Figure 2). 65 respondents chose to use herbal galactagogue due to its natural characteristics as it has natural ingredients for each preparation. Nine respondents assured on the effectiveness of herbal galactagogue, 4 respondents considered herbal galactagogue is safer than pharmaceutical galactagogues, 3 respondents believed there is no serious side effect on herbal galactagogue and physicians advised 2 respondents to consume galactagogue after they raised their concern on their unsatisfying milk ejection measure. Figure 3 shows 44 (53%) mothers consumed galactagogue because of the feeling of deficient in milk ejection, followed by 19 (22.9%) mothers who believe herbal galactagogue is a good supplement for lactating mothers. This study also reveals that galactagogue herb is a postpartum treatment element for 10

women (12%). However, there is little evidence that the herbs actually work for postpartum treatment. Ten mothers don't have any specific reasons on why they consume galactagogue.

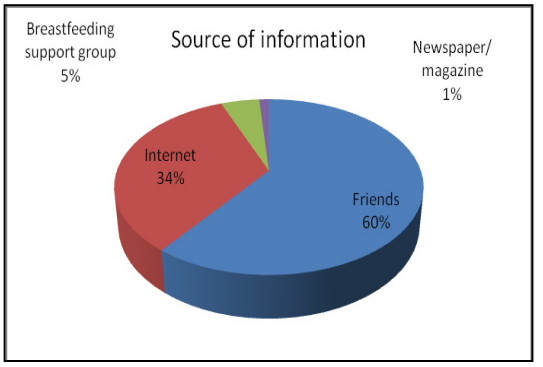

Fig.1. Source of information on herbal galactagogue

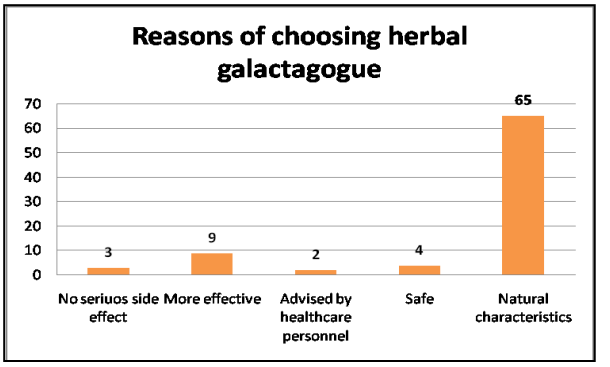

Fig. 2. Reasons on choosing herbal galactagogue instead of pharmaceutical galactagogue.

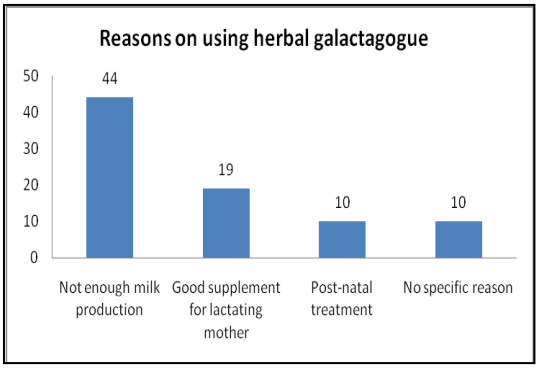

Fig.3. Reasons on using herbal galactagogue

From 44 respondents unsatisfied with their milk ejection, we conducted further assessment on maternal indicators and baby behaviors that contribute to lack milk production feeling. Table 2 shows 88.6% (n=39) of mothers consume galactagogue because they are unable to express the desired measure of breast-milk, while 3 mothers (6.8%) felts that little or no breast engorgement at all and 2.3% of respondents experience softer breasts and thin milk consistency. We also investigate the baby behavior that leads to the shortage of milk production perception. Most of the respondents (n=21; 47.7%) felt that frequent feeding is an indicator to little milk ejection. Nine mothers (20.5%) felt that the inability for the baby to sleep in a long period is a cue for low milk production while six mothers do not have any idea about the baby behavior that may give to low milk production. Three mothers assumed the short feeding is a sign of unsatisfied milk production.

Table 2. Maternal indicators and baby behaviors led to assumption of lack milk ejection

		Baby behavior							
		Frequent feeding	Less frequent feeding	Short feeding	Baby not sleep well	Baby cries after breastfeed	Regular fussiness	No specific reason	Total
Maternal indicator	Inability to express desired amount of milk	19	1	3	8	1	2	5	39
	Little or no engorgement	1	0	0	0	1	0	1	3
	Softer breasts	0	0	0	1	0	0	0	1
	Thin milk consistency	1	0	0	0	0	0	0	1
Total		21	1	3	9	2	2	6	44

Sixty-nine respondents consume one type of herbs as galactagogue at a time and 14 respondents consume two types of galactagogues at a time. The frequently used herbal galactagogue among respondents were alfalfa (47 times), black seed (*Nigella sativa*) (26 times) and fenugreek (19 times) (Figure 4). According to Figure 5, majority mothers rely on other people's experience before selecting a certain herb as galactagogue (n=72, 86.7%). Daily conversation, web-sharing session via blogs and social network on the effectiveness of certain herbs influence the mothers on which herb to choose. Seven respondents find the effectiveness of certain herbs as galactagogue from reported journals, articles and pamphlet. One mother discussed with the healthcare providers before consuming her herbal galactagogue. Discussion with healthcare providers on the usage of galactagogue is most recommended as they can check the herbs suitability with health condition of both mother and baby. Mothers with health problems may face some adverse reactions triggered by certain types of herbal galactagogue. Three respondents believed on their maternal instinct before making decision on using certain types of galactagogues.

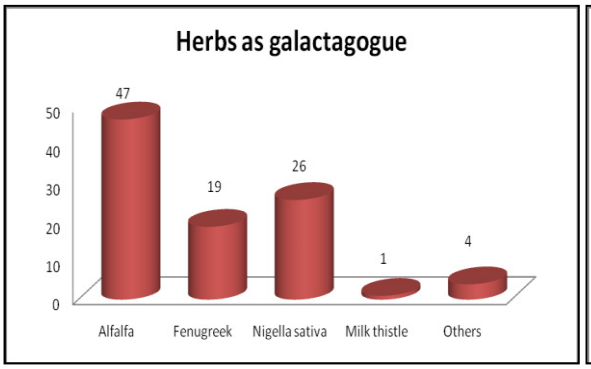

Fig.4. Preferred herbal galactagogues

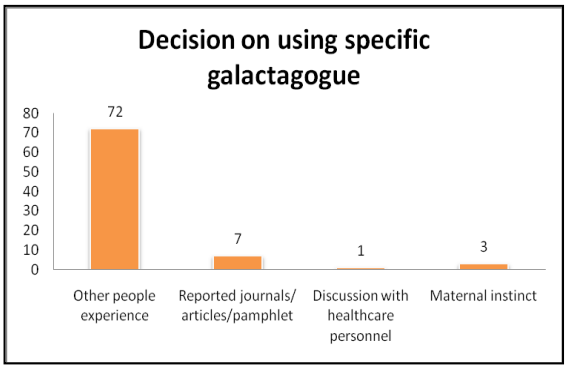

Fig.5. Reference before using specific herbal galactagogue

Table 3 shows a summary of the mothers' education level and their awareness on the side effect of the galactagogue. We calculated a bivariate Spearman's rho correlation (r) to assess the size and direction of the linear relationship between education level and awareness on side effect of galactagogue. The bivariate correlation between these two variables was negative and weak, $r(81)= -0.0142$, $p>0.001$. From this finding, it shows that education status does not affect the awareness of the mothers on the side effect of galactagogue.

Table 3. Mothers' education level and their awareness on the side effect of herbal galactagogue

		Awareness on the side effect of herbal galactagogue		
		Aware	Not aware	Total
Education level	Secondary	4	1	5
	Diploma	5	6	11
	Degree	33	16	49
	Master	11	4	15
	Phd	3	0	3
Total		56	27	83

From this study, 67 (80.7%) mothers are satisfied on the use of herbal galactagogue while 6 mothers (7.2%) are unsatisfied with their milk production after using galactagogue. Ten mothers (12.1%) are unsure on the effectiveness of galactagogue (Figure 6). We assumed that, the satisfied mothers achieved their desired outcome after consuming the galactagogue while for those unsatisfied mothers; their outcome was not achieved as desired. Some mothers experienced milk ejection increasing just for few weeks after taking galactagogue before the production become constant. In the situation where many women experience insufficient milk ejection and seek for alternative from herbal galactagogue, health care providers should have reliable information and evidence to help them in making evidence-based decisions before using these products.

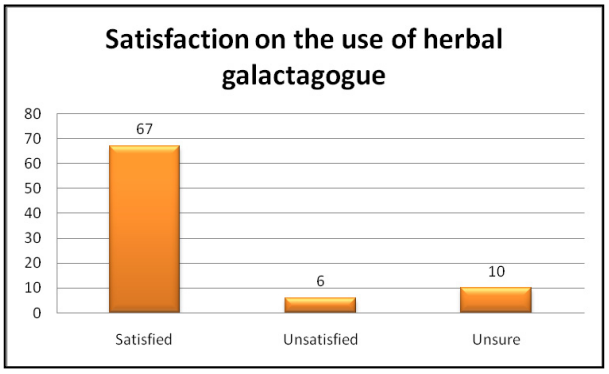

Fig. 6. Mother's satisfaction on the use of herbal galactagogue

5. Discussion

Most mothers prefer to discuss the effectiveness of herbs as a galactagogue when they find their friends successfully expressed their breast milk in desired quantities. Nowadays, many blogs, online journals and websites available in the internet to describe the advantages of using herbs as a galactagogue

and the testimonials from those who have experience using these herbal preparations. However, there was one respondent who doesn't know about galactagogue. There are several assumptions for this situation such as she did not realize that the used herbs are categorized as galactagogue or she is more familiar with the term milk booster. According to Diana and Lisa (2009), there is no specific drug that is specifically designed as galactagogues but they are able to increase breast milk production as one of the drug's reaction. The available pharmaceutical galactogogues are all dopamine antagonists and will increase prolactin levels via this mechanism (Lawrence & Lawrence, 2005). Domperidone and metocloropramide are the most preferred drugs used as galactagogue. However, both drugs have adverse reactions for those with certain medical conditions. Herbal and food as galactagogues have little or no scientific evidence of efficacy, which does not mean they are all effective, but may serve placebo in many cases which preferred among of lactating mothers (The Academy of Breastfeeding Medicine Protocol Committee, 2011). According to Diana and Lisa, 2009, toxicology studies have shown the more widely available herbs are relatively safe, although most of the research is dealing with dairy animals. A study done by Rachell, 2003 shows that though most of the respondents are unable to describe the efficacy of the herbs used as galactagogue, they believe that these herbs have some value in providing needed nutrients for lactating as well as promoting a sense of relaxation and self-efficacy. Softer breast or no breast engorgement often related to the condition when the milk supply adjusted according to baby's need. Mothers' diet often affects milk consistency. The amount of breast-milk ejection via pumping may depend on many factors such as breast pump quality, the efficiency of the kit, breast tissues density and the overall comfort and response to pumping (Diana & Lisa, 2009). The amount of the expressed milk may give some clues on the produced milk but mothers should not depend on this measurement alone. Some mothers misinterpreted when babies breastfeed often especially during the early weeks, it shows that the amount of milk ejection was not enough. Some babies need frequent feeding to fulfill their needs for growth (Diana & Lisa, 2009) or for the reason that breast-milk digestion process is faster as compared to formula milk which leads to frequent hunger among the growing babies. Alfalfa (Medicago sativa) is a popular galactagogue among breastfeeding mothers and it is commonly prepared in tablet form. A study done by Hossein et al., 2013 shows the aqueous and ethanolic extract of black seed are able to stimulate milk productions in rats. Fenugreek seed (Trigonella foenum-graecum) which is commonly used as a culinary herb and imitate the flavour of maple syrup, is one of the oldest documented medicinal herbs and used as galactagogue all over the world (Diana & Lisa, 2009). Some research claimed that fenugreek is possibly estrogenic which stimulates sweat production, and since breast is a modified sweat gland, fenugreek may affect the production of breast-milk in such way (Diana& Lisa, 2009). Currently, there are lots of information available on herbal galactagogue, therefore, mothers should search and understand as much relevant information as possible before deciding to use a particular herbal galactagogue. Mothers should identify the side effects of the herbs before using it as galactagogue as it will affect the child too. Efforts should be made to educate the mothers about the safety and convenience of using herbs as galactagogue.

6. Conclusion

From this study, the perception of the use of herbal galactagogue to increase breast-milk ejection is common among breastfeeding mothers as they concern about the all the benefits of breast-milk to both mothers and babies. Many mothers believe that herbal galactagogue can increase breast-milk ejection and safe because it is natural and almost preservative-free products. Mothers should get more information about herbal galactagogue from authentic sources in term of the appropriateness of the mother and infant conditions before using the herbs. The best way to overcome insufficient breast-milk ejection is to search for the real problems that may lead to reduction of milk ejection before opting for a galactagogue. There

are many reasons that lead to lack of milk such as the introduction of supplement or artificial pacifiers to the baby, sleepy baby that interfere breastfeeding process, mother and baby health or anatomical problems that prevent baby from suckling the milk from the breasts. Mothers should understand that by consuming galactagogues it may not totally solve a milk supply problem if milk suction is not sufficiently frequent and effective. It is important to educate mothers about the right time when galactagogue can have beneficial effect on their health, under which conditions and how to use galactagogue. It is also necessary to educate mothers on possible adverse reaction of some galactagogues taken in high dose. Mothers who wish to use these products during lactation should consult a health care provider before initiation. Mothers should start weaning down the herbs as soon as they have reached desired measurement of breast milk and baby is able to sustain it. We are aware of the limitations of the present study. We carried out this study in a small-scale due to limitation of financial support. Finally, since this questionnaire is only distributed among Malay mothers, this led to a lower sample size and lack of statistic analysis. We suggest for researchers to widen the scope of public area to get the real of public understanding of the usage of galactagogue or milk booster. The outcome from this study can be used to plan advanced clinical research on each type of herbal galactagogue used among breastfeeding mother and eventually promote the use of natural products as galactagogoue. Thus mothers will have a successful journey on breastfeeding as it will improve both mother and child quality of life.

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